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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,290	08/06/2003	Hidetoshi Suzuki	2842.16US01	8037

7590 03/31/2005

Douglas J. Christensen, Esq.  
Patterson, Thunte, Skaar & Christensen, P.A.  
4800 IDS Center  
80 South Eighth Street  
Minneapolis, MN 55402-2100

EXAMINER

SCHWARTZ, CHRISTOPHER P


ART UNIT

PAPER NUMBER

3683

DATE MAILED: 03/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

 <b>Office Action Summary</b>	Application No. 10/635,290	Applicant(s) SUZUKI ET AL.	
	Examiner Christopher P. Schwartz	Art Unit 3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 10, 13-19, 21, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 8, 11, 12, 20, 22 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

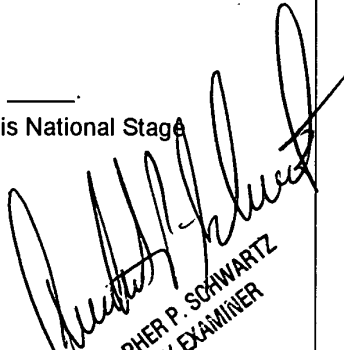
#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

  
**CHRISTOPHER P. SCHWARTZ**  
**PRIMARY EXAMINER**



**DETAILED ACTION**

1. Applicant's response filed 1/7/05 has been received and considered. Claims 1-25 are pending in the application.

***Claim Objections***

2. Claims 6,18 objected to because of the following informalities: it is not entirely clear what is meant by "to apply a constant voltage that is opposite.... It appears that voltage is just reduced or that the motor is reversed. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
5. Claims 1,2,13,14,21,24,25 rejected under 35 U.S.C. 103(a) as being unpatentable over Shirai et al. in view of Yokoyama et al.

Regarding claims 1,13,24,25 Shirai et al. (previously applied) discloses an electrically operated braking system having a driver incorporated between an electric power source and the electric motor(s) so that power to the motors may be supplied through an external command control but also incorporates a relationship estimating and utilizing device which comprises the means for supplying a predetermined amount of power to the electric motors. Please see the discussions in columns 1-6. Shirai et al. Also provides numerous sensors to detect the level of motor current (or voltage) supplied to the motors for the appropriate amount of braking force during ABS or TSC control. See the discussion in column 48.

It is notoriously well known in the art to regulate the amount of voltage supplied to the electric brake motors as an integral part of energy management systems on hybrid or electric vehicles.

The reference to Yokoyama et al. however states in columns 5 and 6 that an operation condition sensor 3 provides a controller 4 with information regarding the operating modes of the brake actuator(s) some of which includes the amount of braking force and motor temperature. See figures 1 and 3 of this reference. Lines 27-30 discuss that "when the temperature sensor indicates an abnormal high temperature the current (or voltage) which is supplied to the motor is limited in accordance with such temperature..."

The ordinary skilled worker in the art at the time of the invention would have found it obvious to have applied the teachings of Yokoyama et al. to those of Shirai et al. to offer more complete energy management system or to protect the motors from

overheating. As discussed in the previous action, applicants "predetermined periods" may be met during ABS, TSC or stability control braking in Shirai et al., as modified.

Regarding claims 2, 14, 21 these limitations are considered to be met.

6. Claims 3-6, rejected under 35 U.S.C. 103(a) as being unpatentable over Shirai et al. in view of Yokoyama et al. as applied to claim 1 above, and further in view of Poertzgen et al.

Regarding claim 3, as discussed previously, Poertzgen discloses in columns 2-4 many of applicants claimed limitations. For instance the characteristics of speed and current consumption of the electric motor are measured as a function of time and the amount of clamping force exerted by the brake may automatically be varied in dependence upon the inclination of the roadway.

To have incorporated these features into Shirai et al., as modified, would have been obvious as part of the energy management system of the vehicle and for overall better braking control, especially on hills.

Regarding claim 4 note the computer used in Shirai et al. and the memory means as discussed at the top of column 3.

Regarding claims 5-6, 15-18, these limitations are fairly suggested by the combined references above.

7. Claims 7, 9, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirai et al. in view of Yokoyama et al. as applied to claim 1 above, and further in view of Mohr et al.

It is notoriously well known in the art to use PWM to control the power supplied to electrically actuated brake motors to reduce power consumption and increase efficiency and responsiveness to brake demand requirements.

Mohr et al. is relied upon for this general teaching in column 4 lines 26-40.

One having ordinary skill in the art at the time of the invention would have found it obvious to have incorporated PWM control into the controller of Poertzen et al. for the reasons given above.

The limitations of claims 8,9,19,20 would have been obvious simply dependent upon the desired operation of the electric motor (i.e. motor operating speed, responsiveness, operating temperature constraints etc.) and safety provisions of a known energy management system.

***Allowable Subject Matter***

8. Claims 8,11,12,20,22,23 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

9. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Schwartz whose telephone number is 703-308-0576. The examiner can normally be reached on M-F 9:30-6:00.

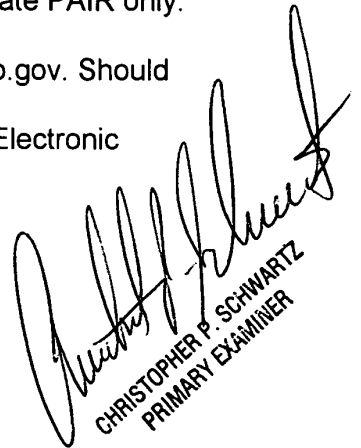
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Bucci can be reached on 703-308-3668. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cps  
3/19/05



CHRISTOPHER P. SCHWARTZ  
PRIMARY EXAMINER